nets within a region of a design layout. The router (1) partitions the region into a first set of sub-regions, and (2) for each particular net, identifies a route that traverses a set of the first-set sub-regions. In some embodiments, the invention's method partitions the first set of sub-regions into a second set of smaller sub-regions. It then identifies a plurality of propagation possibilities for propagating each route into the second set of smaller sub-regions of the first set sub-regions. The method next formulates a linear-programming ("LP") problem based on the identified propagation possibilities. The method then solves the LP problem. In some embodiments, the formulated LP problem is an integer-linear-programming ("ILP") problem, and solving the ILP problem returns integer solutions that specify one propagation permutation for each route in each first-set sub-region traversed by the route. In other embodiments, solving the LP problem returns real-numbered solutions. In some of these embodiments, the method converts the real-number solutions into integer solutions that specify one identified propagation permutation for each route in each first-set sub-region traversed by the route.--

REMARKS

This Preliminary Amendment is concurrently filed with the above-entitled application, which is a continuation application of a presently pending application entitled "Routing Method and Apparatus that Utilizes Diagonal Routes," filed on December 7, 2001, and having serial number 10/013,819. In this Preliminary Amendment, Applicants have changed the title of this application, inserted a reference to the related parent application, canceled claims 1-26, added claims 27-52, and replaced the

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